



# Scalar implicature and ignorance inference are both locally computed

Evidence from the online processing of disjunctions  
using the visual world paradigm

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# **Introduction**

# Scalar implicature and ignorance inference

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1. Two simple propositions

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  - a. Xiaoming's box contains a cow.

# Scalar implicature and ignorance inference

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  - a. Xiaoming's box contains a cow.
  - b. Xiaoming's box contains a rooster.

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2. Two statements

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  - a. Xiaoming's box contains a cow **and** a rooster.



# Scalar implicature and ignorance inference

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  - a. **Scalar implicature**  
Statement (2a) is false.

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3. Two inferences deduced from statement (2b)
  - a. **Scalar implicature**  
Statement (2a) is false.
  - b. **Ignorance inference**  
The truth of propositions (1a-b) are unknown.

# Different accounts

## Different accounts

- Pragmatic account  
(Fauconnier, 1975; Franke, 2011; Geurts, 2009; Horn, 1972; Russell, 2006; Sauerland, 2004; Spector, 2007; van Rooij & Schulz, 2004)

## Different accounts

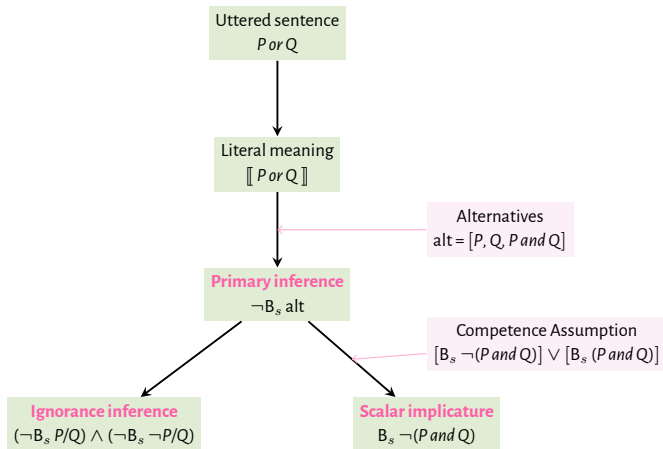
- Pragmatic account  
(Fauconnier, 1975; Franke, 2011; Geurts, 2009; Horn, 1972; Russell, 2006; Sauerland, 2004; Spector, 2007; van Rooij & Schulz, 2004)
- Hybrid account  
(Chierchia, 2004, 2017; Chierchia, Danny Fox, & Spector, 2012; Fox, 2007, 2014; Fox & Hackl, 2007; Magri, 2009, 2011);

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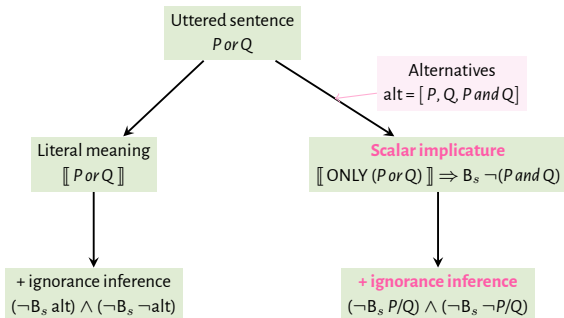
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- Grammatical account  
(Meyer, 2013);



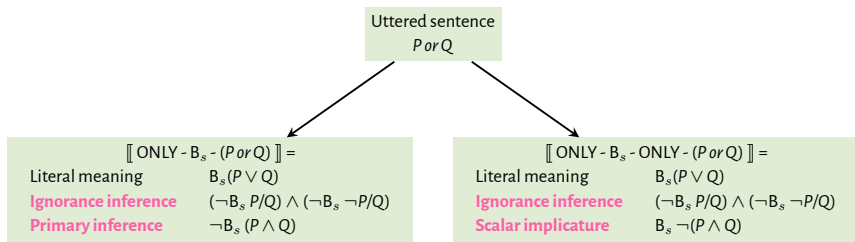
# Pragmatic account



# Hybrid account



# Grammatical account



# Theoretical predictions

	Account	Scalar implicature vs Ignorance inference	Primary inference
Pragmatic		Scalar implicature > Ignorance inference	Yes
Hybrid		Scalar implicature < Ignorance inference	No
Grammatical	ONLY - $B_s$ - ( $P$ or $Q$ )	Scalar implicature = Ignorance inference	Yes
	ONLY - $B_s$ - ONLY - ( $P$ or $Q$ )	Scalar implicature = Ignorance inference	No

## **Our studies**

# Test sentences

## a).And

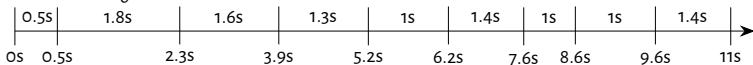
小明的 箱子里 有 一只 奶牛 和 一只 公鸡  
Xiaoming de xiang zi li you yi zhi nai niu he yi zhi gong ji  
Xiaoming's box in have one-CL cow and one-CL rooster  
*Xiaoming's box contains a cow and a rooster.*

## b).But

小明的 箱子里 有 一只 奶牛 但 没有 公鸡  
Xiaoming de xiangzi li you yi zhi nai niu dan meiyou gong ji  
Xiaoming's box in have one-CL cow but not rooster  
*Xiaoming's box contains a cow but not a rooster.*

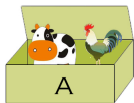
## c).Or

小明的 箱子里 有 一只 奶牛 或 一只 公鸡  
Xiaoming de xiang zi li you yi zhi nainiu huo youzhi gongji  
Xiaoming's box in have one-CL cow or one-CL rooster  
*Xiaoming's box contains a cow or a rooster.*

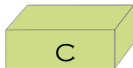
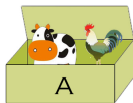


# Test images

Experiment one



Experiment two

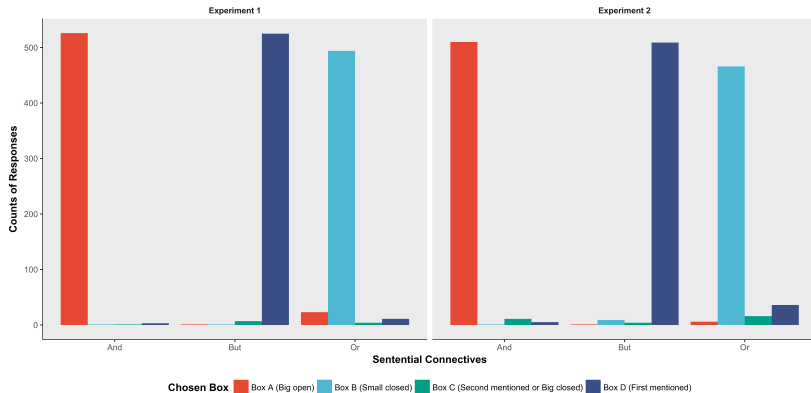


# Experimental predictions

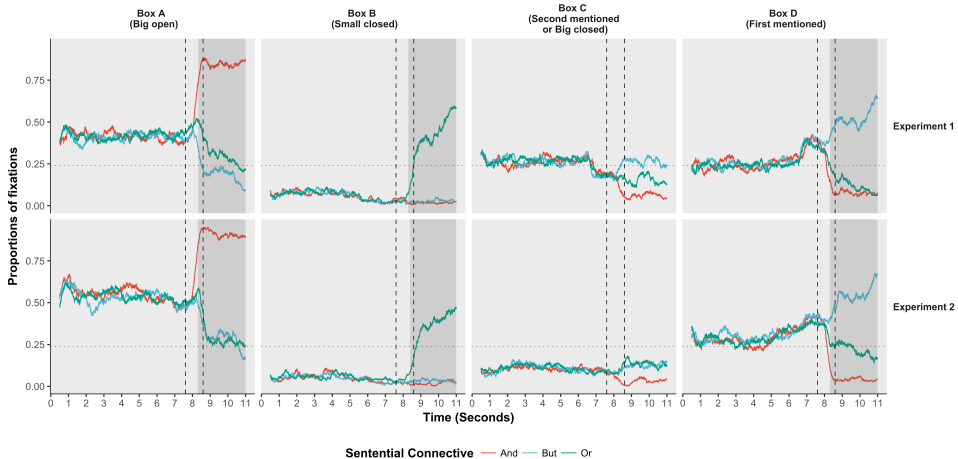
Experiment	Inferences	Box A	Box B	Box C	Box D
One	Scalar implicature	Big-open X	Small-closed	Second-mentioned	First-mentioned
	Ignorance inference			X	X
	Primary inference				
Two	Scalar implicature	Big-open X	Small-closed	Big-closed	First-mentioned
	Ignorance inference				X
	Primary inference			X	



# Behavioral responses



# Eye movements



# Conclusions

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Pragmatic		Scalar implicature > Ignorance inference	Yes
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**Thanks**  
**Questions?**